

Notice of Allowability

Application No.

10/772,302

Applicant(s)

TAIRA ET AL.

Examiner

Vincent E. Kovalick

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to applicant's patent application dated 2/6/04 (re-numbered 1-22).
2. ☒ The allowed claim(s) is/are 1-22.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 2/6/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

1. This Office Action is in response to Applicant's Patent Application, Serial No. 10/772,302, with a File Date of February 6, 2004.

Allowable Subject Matter

2. Claims 1-22 are allowed.
3. Relative to claim 1, the major difference between the teachings of the referenced prior art (USP 6,304,381, Hayashi and USP 5,682,214, Amako et al.) and that of the instant invention is that said referenced prior art **does not teach** a three-dimensional image display apparatus, comprising: an image display having a plurality of pixels arranged in an array, wherein the image display is configured to provide image light having a polarization; a lens array arranged in front of the image display, configured to function as a lens for light having a first polarization direction, and not function as a lens for light having a polarization direction differing from the first polarization direction; and a birefringent phase modulator placed between the image display and the lens array, wherein the birefringent phase modulator is configured to rotate a polarization plane of the image light.

Regarding claim 6, the major difference between the teachings of the said referenced prior art and that of the instant invention is that said referenced prior art **does not teach** a three-dimensional image display apparatus, comprising: an image display having a plurality of pixels configured in an array, wherein the image display is configured to output an image light having polarization; a lens array arranged in front of the image display having a liquid crystal layer and

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a pair of electrodes which sandwich the liquid crystal layer, and configured to control a lens action for light having a first polarization direction by applying a voltage; and a birefringent phase modulator arranged between the image display and the lens array and configured to rotate a polarization plane of the image light.

Relative to claim 9, the major difference between the teachings of the said referenced prior art and that of the instant invention is that said referenced prior art **does not teach** a three-dimensional image display apparatus, comprising: an image display configured to array a plurality of pixels and output an image light which has polarization: a first lens array arranged in front of the image display, has a liquid crystal layer and a pair of electrodes which sandwich the liquid crystal layer, and configured to control a lens effect to light which has a first polarization direction by applied voltage; a second lens array arranged in front of the first lens array, has a liquid crystal layer and a pair of electrodes which sandwich the liquid crystal layer, and configured to control a lens effect to light which has a second polarization direction differed from the first polarization direction by applied voltage; a first birefringent phase modulator arranged between the image display and the first lens array and configured to rotate a polarization plane of the image light; and a second birefringent phase modulator arranged between the first lens array and the second lens array and configured to rotate a polarization plane of the output light from the first lens array.

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Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent No.	6,304,381	Hayashi
U. S. Patent No.	5,682,214	Amako et al.
U. S. Patent No.	3,501,219	Caulfield

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To Respond

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent E. Kovalick whose telephone number is 571-272-7669. The examiner can normally be reached on Monday-Thursday 7:30- 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Vincent E. Kovalick
November 17, 2006



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SUPERVISORY PATENT EXAMINER
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